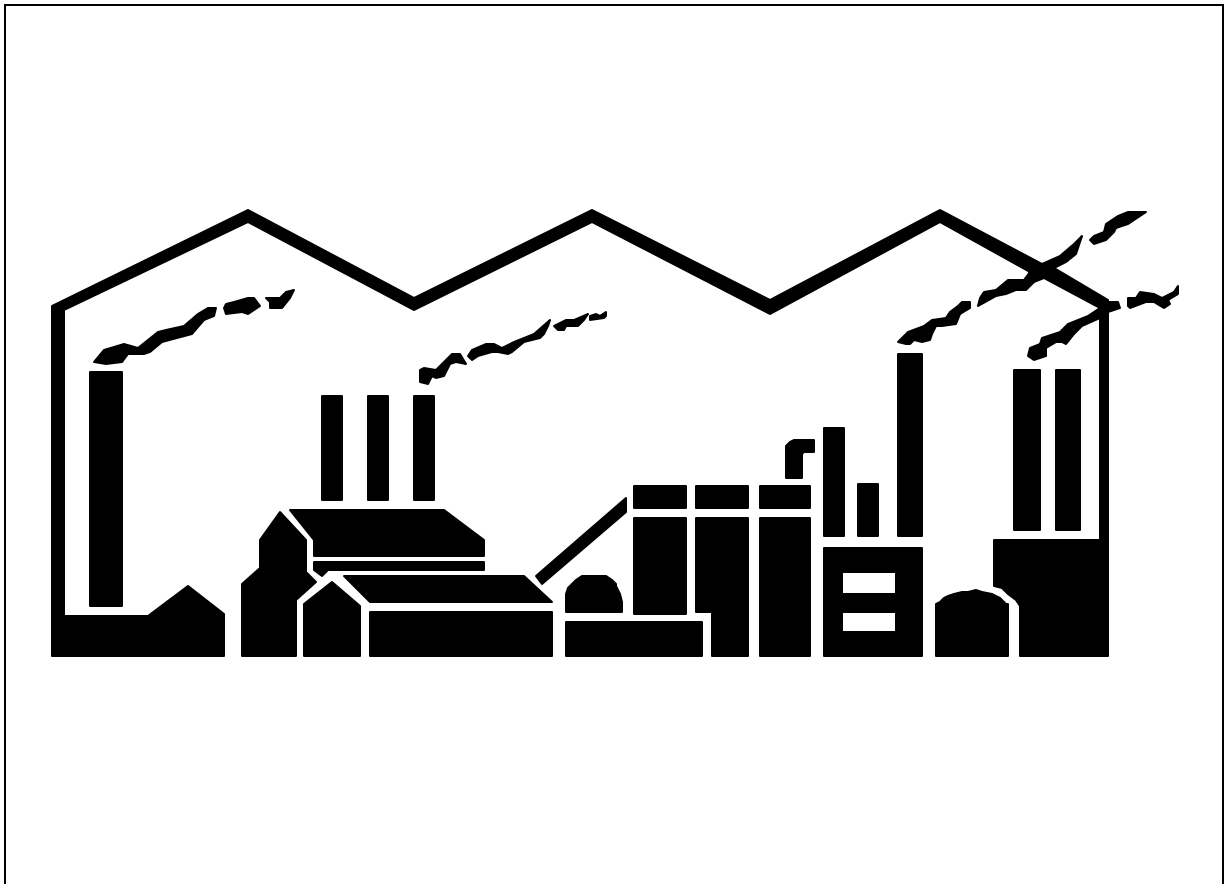


CENSUS OF FATAL OCCUPATIONAL INJURIES



MICHIGAN, 2001

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MIOSHA Information Division
Michigan Dept. of Consumer
& Industry Services
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FATAL WORK INJURIES IN MICHIGAN, 2001

Injuries sustained in transportation accidents resulted in the death of 64 Michigan workers in 2001. This represents 37 percent of the 175 workers fatally injured in Michigan in 2001. Highway accidents accounted for 28 fatalities or 16 percent of the total. Being struck by an object resulted in the death of 15 Michigan workers and 23 others were killed as the result of falls. Assaults and violent acts accounted for 37 deaths or 21 percent of the total. These findings are from the Census of Fatal Occupational Injuries conducted by the Michigan Department of Consumer & Industry Services, MIOSHA Information Div. in cooperation with the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor.

The Census of Fatal Occupational Injuries uses multiple sources to identify, verify, and profile work injuries that are fatal. Key information about each workplace fatality (such as occupation and other worker characteristics, equipment being used, and circumstances of the event) is obtained by cross-referencing a variety of source records. These records include death certificates, workers compensation records, and reports to federal and state agencies.

2001 CENSUS PROFILES

Major findings of the Michigan Census are:

- Transportation accidents led all other events and accounted for 37 percent of the 175 fatal occupational injuries in 2001. This was followed by Assaults and Violent Acts at 21 percent and Contact with Objects and Equipment at 18 percent. (Table 1)
- Seventy one percent of the fatally injured Michigan workers were 25 - 54 years of age.
- Seven percent of Michigan's fatally injured workers were women.
- Occupations with the largest number of worker fatalities were Operators, Fabricators and Laborers and Precision Production, Craft and Repair.
- Industry groups with the largest number of Michigan fatal work injuries in 2001 were Construction (36), Manufacturing (30), and Transportation and Public Utilities (26). (Table 4.)

BACKGROUND - CENSUS OF FATAL OCCUPATIONAL INJURY PROGRAM

The Census of Fatal Occupational Injuries program, part of the BLS safety and health statistics program, provides the most complete count of fatal work injuries available. The program uses diverse state and federal data sources to identify, verify and profile fatal work injuries. Information about each workplace fatality (occupation and other worker characteristics, equipment being used, and circumstances of the event) is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, and reports to federal and state agencies. This method assures counts are as complete and accurate as possible. This is the ninth year that the fatality census has been conducted in all 50 states and the District of Columbia.

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries
by Event or Exposure, Michigan, 2001**

1/ Event or Exposure	<u>Fatalities</u>	
	Number	Percent
Total	175	100
Transportation incidents	64	37
Highway incident	28	16
Collision between vehicles, mobile equipment	14	8
Collision between vehicles, mobile equipment, uns.	4	2
Moving and standing vehicle, mobile equipment- in roadway	3	2
Vehicle struck stationary object or equipment on side of road	4	2
Noncollision incident	7	4
Jack-knifed or overturned – no collision	6	3
Nonhighway incident, except rail, air, water	17	10
Noncollision incident	15	9
Fall from moving vehicle, mobile equipment	4	2
Fall from and struck by vehicle, mobile equipment	3	2
Overturned	7	4
Pedestrian, non passenger struck by vehicle, mobile equipment	9	5
Pedestrian struck by vehicle, mobile equipment in roadway	4	2
Pedestrian struck by vehicle, mobile equipment in parking lot or non-roadway area	4	2
Railway incident	3	2
Aircraft incident	5	3
During takeoff or landing	4	2
Assaults and violent acts	37	21
Homicides	24	14
Shooting	23	13
Self-inflicted injury	13	7
Suicide, attempted suicide	13	7

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries
by Event or Exposure, Michigan, 2001
(continued)**

1/ Event or Exposure	<u>Fatalities</u>	
	Number	Percent
Contact with objects and equipment	32	18
Struck by object	15	9
Struck by falling object	7	4
Struck by rolling, sliding objects on floor or ground level	4	2
Caught in or compressed by equipment or objects	11	6
Caught in running equipment or machinery	9	5
Caught in or crushed in collapsing material	6	3
Falls	23	13
Fall to lower level	21	12
Fall from roof	4	2
Fall from nonmoving vehicle	4	2
Fall to lower level, n.e.c.	5	3
Exposure to harmful substances or environments	11	6
Contact with electric current	4	2
Contact with wiring, transformers, or other electrical components	3	2
Exposure to caustic, noxious, or allergenic substances	4	2
Fires and explosions	7	4
Explosion	6	3
Explosion, n.e.c.	4	2

1/ Based on 1992 BLS Occupational Injury/Illness Classification Manual.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals due to rounding.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 2. Number and Percent Distribution, of Fatal Occupational
Injuries by Selected Characteristics, Michigan, 2001**

Worker Characteristics	Number	<u>Fatalities</u>	Percent
Total	175		100
Employee Status			
Wage and salary workers 1/	142		81
Self-employed 2/	33		19
Sex			
Men	162		93
Women	13		7
Age			
Both sexes:			
Under 16 years	--		--
16 to 17 years	--		--
18 to 19 years	3		2
20 to 24 years	9		5
25 to 34 years	36		21
35 to 44 years	44		25
45 to 54 years	44		25
55 to 64 years	26		15
65 years and over	11		6
Race			
White	138		79
Black or African-American	19		11
Hispanic or Latino	7		4
American Indian or Alaska Native	4		2
Asian	--		--
Native Hawaiian or Pacific Islander	--		--

1/ May include volunteers and other workers receiving compensation.

2/ Includes paid and unpaid family workers, and may include owners of incorporated businesses, or members of partnerships.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Table 3. Number and Percent Distribution of Fatal Occupational Injuries by Occupation, Michigan, 2001

1/ Occupation	Number	<u>Fatalities</u> Percent
Total	175	100
Managerial and professional specialty	25	14
Executive, administrative, and managerial	10	6
Managers and administrators, n.e.c.	7	4
Professional specialty	15	9
Teachers, except postsecondary	6	3
Technical sales, and administrative support	23	13
Technicians and related support occupations	6	3
Technicians, except health, engineering and science 3		2
Sales occupations	14	8
Supervisors and proprietors, sales occupations	9	5
Administrative support occupations, including clerical 3		2
Service occupations	23	13
Protective service occupations	9	5
Police and detectives, including supervisors	6	3
Police and detectives, public services	3	2
Service occupations except protective and household	14	8
Cleaning and building service occupations, except house	6	3
Janitors and cleaners	6	3
Personal service occupations	4	2
Farming, forestry and fishing	21	12
Farming operators and managers	12	7
Farmers, except horticultural	10	6
Other agricultural and related occupations	6	3
Farm occupations, except managerial	4	2
Farm workers	4	2
Forestry and logging occupations	3	2
Timber cutting and logging occupations	3	2

**Table 3. Number and Percent Distribution of Fatal Occupational
Injuries by Occupation, Michigan, 2001
(continued)**

1/ Occupation	Number	<u>Fatalities</u> Percent
<hr/>		
Precision production, craft and repair	26	15
Mechanics and repairers	6	3
Mechanics and repairers, except supervisors	5	3
Construction trades	15	9
Construction trades, except supervisors	13	7
Structural metal workers	3	2
Precision production occupations	5	3
Operators, fabricators, and laborers	57	32
Machine operators, assemblers, and inspectors	11	6
Machine operators and tenders, except precision	7	4
Metal working and plastic working machine operators	3	2
Machine operators, assorted materials	4	2
Production inspectors, testers, samplers and weighers	3	2
Transportation and material moving operations	28	16
Motor vehicle operators	15	9
Truck drivers	11	6
Transportation occupations, except motor vehicles	4	2
Material moving equipment operators	9	5
Excavating and loading machine operators	3	2
Handlers, equipment cleaners, helpers, and laborers	18	10
Construction laborers	9	5
Freight, stock, and material handlers	3	2
Laborers, except construction	6	3

1/ Based on the 1990 Occupational Classification System developed by the Bureau of the Census.

NOTE: Totals for major categories may include subcategories not shown separately.
Percentages may not add to totals due to rounding.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal Agencies, Census of Fatal Occupational Injuries.

Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan, 2001

1/ Industry	<u>Fatalities</u>	
	Number	Percent
Total	175	100
Private Industry	162	93
Agriculture, forestry, and fishing	22	13
Agriculture production - crops	7	4
General farms, primary crop	5	3
Agriculture production – livestock	7	4
Dairy farms	3	2
General farms, primarily animal	3	2
Agricultural services	8	5
Landscape and horticultural services	5	3
Ornamental shrub and tree services	3	2
Construction	36	21
General building contractors	4	2
Heavy construction, except building	5	3
Heavy construction, except highway	3	2
Special trades contractors	27	15
Plumbing, heating, air conditioning	4	2
Masonry, stonework, and plastering	4	2
Roofing, siding and sheet metal work	4	2
Concrete work	3	2

Miscellaneous special trade contractors	8	5
Structural steel erection	3	2
Excavation work	3	2

Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan, 2001
(continued)

1/ Industry	<u>Fatalities</u>	
	Number	Percent
<hr/>		
Manufacturing	30	17
Food and kindred products	3	2
Lumber and wood products	3	2
Chemicals and allied products	4	2
Industrial organic chemicals	3	2
Fabricated metal products	4	2
Industrial machinery and equipment	5	3
Transportation equipment	5	3
Motor vehicles and equipment	4	2
Motor vehicle parts and accessories	4	2
Transportation & public utilities	26	15
Local and interurban passenger transit	3	2
Trucking and warehousing	11	6
Trucking and courier services, except air	10	6
Local trucking, without storage	3	2
Trucking, except local	5	3
Transportation by air	5	3

Airports, flying fields, and services	3	2
Electric, gas and sanitary services	3	2
Wholesale trade	9	5
Wholesale trade - durable goods	6	3
Wholesale trade – nondurable goods	3	2
Retail trade	12	7
Food stores	3	2
Grocery stores	3	2
Eating and drinking places	3	2

Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan, 2001
(continued)

1/ Industry	<u>Fatalities</u>	
	Number	Percent
Finance, insurance and real estate	3	2
Services	24	14
Personal services	3	2
Business services	6	3
Amusement and recreation services	4	2
Miscellaneous amusement, recreation services	3	2
Health services	5	3
Government	13	7
Federal Government (including resident armed forces)	3	2
Local Government	9	5

1/ Classified according to the Standard Industrial Classification Manual, 1987 Edition.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals due to rounding.

SOURCE: U. S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries
by Source of Injury, Michigan, 2001**

Source of Injury	<u>Fatalities</u>	
	Number	Percent
Chemicals and chemical products	7	4.0
Other chemicals	6	3.4
Multiple chemicals or chemical mixtures, n.e.c.	3	1.7
Other multiple chemicals or chemical mixtures	3	1.7
Machinery	23	13.1
Construction, logging and mining machinery	11	6.3
Excavating machinery	3	1.7
Backhoes	3	1.7
Loaders	3	1.7
Material handling machinery	4	2.3
Metal, woodworking, & special material machinery	4	2.3
Miscellaneous machinery	3	1.7
Other machinery	3	1.7

Parts and materials	13	7.4
Building materials - solid elements	4	2.3
Structural metal materials	3	1.7
Fasteners, connectors, ropes, ties	4	2.3
Ropes, ties	4	2.3
Machine tool and electric parts	5	2.9
Electric parts	3	1.7
Electric wiring	3	1.7
Persons, plants, animals and minerals	8	4.6
Food products—fresh or processed	3	1.7
Structures and surfaces	22	12.6
Floors, walkways, ground surfaces	19	10.9
Floors	5	2.9
Floor of building	4	2.3
Ground	10	5.7
Tools, instruments, and equipment	3	1.7

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries
by Source of Injury, Michigan, 2001
(continued)**

Source of Injury	<u>Fatalities</u>	
	Number	Percent
Vehicles	64	36.6
Air vehicle	6	3.4
Aircraft, powered fixed wing	5	2.9
Aircraft—powered fixed wing, unspecified	5	2.9
Highway vehicle, motorized	39	22.3
Automobile	16	9.1
Truck	19	10.9
Pickup truck	8	4.6
Semitrailer, tractor trailer, trailer truck	4	2.3
Truck, n.e.c.	3	1.7

Plant and industrial powered vehicles, tractors	11	6.3
Forklift	4	2.3
Tractor	7	4.0
Rail vehicle	3	1.7
Train	3	1.7
Other Sources	34	19.4
Ammunition	28	16.0
Bullets	28	16.0
Atmospheric and environmental conditions	5	2.9
Total	175	100.0

Note: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Source: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Table 6
Number and Percent Distribution of Fatal Occupational Injuries
by Part of Body, Michigan, 2001

Part of Body	<u>Fatalities</u>	
	Number	Percent
Head	44	25.1
Head, unspecified	10	5.7
Cranial region, including skull	34	19.4
Neck, including throat	5	2.9
Neck, except internal location of diseases		

or disorders	5	2.9
Trunk	34	19.4
Chest, including ribs, internal organs	2	1.1
Back, including spine, spinal cord	2	1.1
Multiple trunk locations	27	15.4
Lower Extremities	3	1.7
Leg(s)	3	1.7
Body Systems	27	15.4
Multiple Body Parts	61	34.9
<hr/>		
TOTAL	175	100.0
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Note: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Source: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Chart 1
Fatal Occupational Injuries by Nature of Injury Michigan, 2001

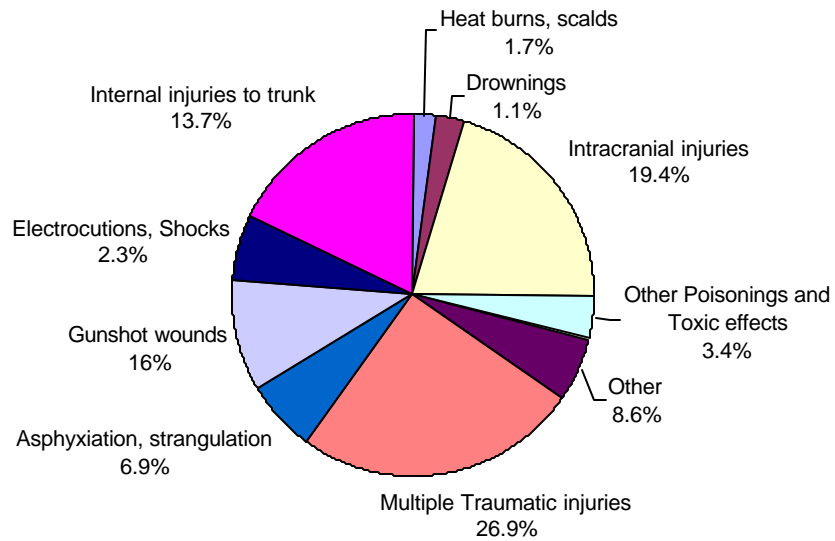
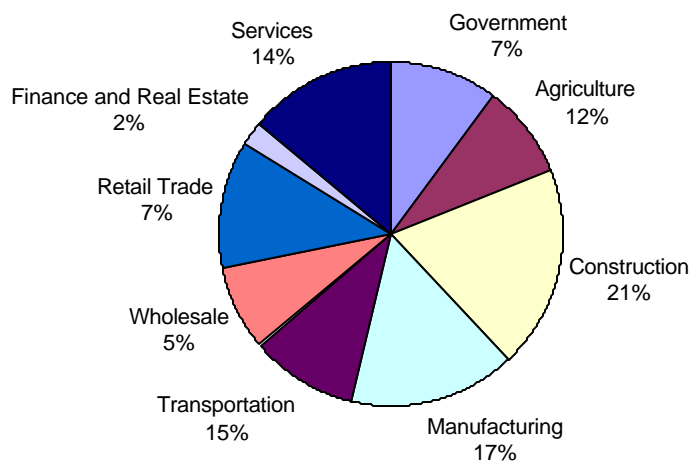


Chart 2
Fatal Occupational Injuries by Industry Division Michigan, 2001



SOURCE: Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

TECHNICAL NOTES

Definitions

For a fatality to be included in the census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in legal work activity or present at the site of the incident as a requirement of his or her job. These criteria are generally broader than the criteria used by Federal and State agencies administering specific laws and regulations. (Fatalities that occur during a person's commute to and from work are excluded from the census counts)

Data presented in this release include deaths occurring in 2001 that resulted from traumatic occupational injuries. An injury is defined as an intentional or unintentional wound or damage to the body resulting from acute exposure to energy, such as heat, electricity or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event, incident, or series of events within a single workday or shift. Included are open wounds, intracranial and internal injuries, heatstroke, hypothermia, asphyxiation, acute poisonings resulting from short-term exposures limited to the worker's shift, suicides and homicides, and work injuries listed as underlying or contributory causes of death.

Information on work-related fatal illnesses are not reported in the BLS census and are excluded from the attached tables because the latency period of many occupational illnesses and the difficulty of linking illnesses to work make identification of a universe problematic.

Measurement Techniques and Limitations

Data for the Census of Fatal Occupational Injuries are compiled from various state, federal and local administrative sources--including death certificates, workers' compensation reports and claims, reports to various regulatory agencies, medical examiner reports and police reports--as well as news and other non-governmental reports. Diverse sources are used because studies have shown that no single source captures all job-related fatalities. Source documents are matched so that each fatality is counted only once. To ensure that a fatality occurred while the

decedent was at work, information is verified from two or more independent source documents, or from a source document and a follow-up questionnaire. Approximately 30 data elements are collected, coded, and tabulated, including information about the worker, the fatal incident, and the machinery or equipment involved.

Federal/State Agency Coverage

The Census of Fatal Occupational Injuries includes data for all fatal work injuries, whether they are covered by the Michigan Occupational Safety and Health Administration (MIOSHA) or other federal or state agencies or are outside the scope of regulatory coverage. Thus, any comparison between the BLS fatality census counts and those released by other agencies should take into account the different coverage requirements and definitions being used.

Several Federal and State agencies have jurisdiction over workplace safety and health. The Occupational Safety and Health Administration (OSHA) and affiliated agencies in States such as Michigan with OSHA approved safety programs cover the largest portion of the nations workers. However, injuries and illnesses occurring in certain industries or activities, such as coal, metal, and nonmetal mining and highway, water, rail, and air transportation, are excluded from MIOSHA coverage because they are covered by other federal agencies, such as the Mine Safety and Health Administration, and various agencies within the Department of Transportation. Fatalities occurring in activities regulated by federal agencies other than MIOSHA are included in the count of fatal work injuries for Michigan in 2001.

Fatalities occurring among several other groups of workers are generally not covered by any federal or state agencies. These groups include self-employed and unpaid family workers, which accounted for about 19 percent of the fatalities.

Acknowledgments: We appreciate the effort of all agencies that submitted source documents used to achieve the objectives of this program. To collect and publish data on fatal work injuries that is timely, accurate, comprehensive, and useful for injury prevention.

Among these agencies are the Occupational Safety and Health Administration; National Institute for Occupational Safety and Health; the Center for Disease Control and Prevention; the Mine Safety and Health Administration; the U. S. Coast Guard; the Employment Standards Administration (Federal Employees' Compensation and Longshore and Harbor Workers' divisions); the National Transportation Safety Board; the Department of Energy; the National Association of Chiefs of Police; the Michigan vital statistics registrars, coroners, and medical examiners; the Michigan Bureau of Workers Disability Compensation; the Michigan Department of Community Health, State Registrar and Division of Health Statistics; the Michigan State Police Office of Highway and Safety Planning; Local Police Departments; and the state farm bureaus.

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MIOSHA

Michigan Occupational Safety & Health Act